

Topic :- Ecosystem

- 1 **(c)**
The functional aspect of ecosystem is productivity, decomposition, energy flow and nutrient cycling
Productivity Plant synthesis food with input of solar energy
Decomposition It is the process by which complex organic into organic substances
Energy flow It is the process by which energy stored by plant transferred to the other trophic level and at each trophic level energy is dispersed into atmosphere in different form and in an ecosystem final trophic level is of decomposer, which degrade the complex organic matter in to simple compound so energy flow maintain the integrity of ecosystem
Nutrient cycling The movement of nutrient element through various component of an ecosystem is called nutrient cycling
- 2 **(a)**
The transfer of energy from producers to top consumers through a series of organisms is called food chain. One organism holds only one position. The flow of energy can be easily calculated. It is always straight and proceeds in a progressive straight line. Competition is limited to the members of same trophic level
- 3 **(d)**
Out of the total incident solar radiation, only 50% of it is Photosynthetically Active Radiation (PAR). Plants capture only 2-10% of the PAR and this small amount of energy sustains the entire living world
- 4 **(d)**

Tectona grandis is a vegetation of tropical moist deciduous forests.

- 5 **(c)**
Pyramid of energy is the graphic representation of the amount of energy trapped per unit time and area in different trophic levels of a food chain from producers to top carnivores. Pyramid of energy is a true pyramid as it is always upright.
- 7 **(b)**
The 10% energy transfer law of food chain is best known as **Lindemann's law of trophic efficiency**. It was given by **Lindemann**. It states that the efficiency of energy transfer from one trophic level to the next is about 10%.
- 9 **(c)**
In **early stages of plant succession**, photosynthesis is more than respiration ($P > R$) and in **climax stage**, huge respiration of living biomass occurs and ($P / R = 1$) or, photosynthesis is equal to respiration ($P = R$). So, net productivity becomes stable, when climax stage is reached in plant succession.
- 10 **(a)**
Ecotone is the area of transition between two biotic communities or ecosystems. Ecotone is characterized by the presence of species of both the communities.
- 11 **(b)**
Primary Productivity (PP) is defined as the rate at which radiant energy is converted by the photosynthetic and chemosynthetic autotrophs to organic substances
- 12 **(a)**
Maximum amount of energy is present in producers (at first trophic level) and goes on decreasing as one moves up the food chain.
- 13 **(d)**
The amount of living matter present in an ecosystem is known as biomass. It is upright in

case of a tree, which supports a large number of birds and inverted in a pond, where a large fish eats upon a large number of phytoplanktons

14 **(c)**

A climax community is stable, self perpetuating and final biotic community that develops at the end of biotic succession and is in perfect harmony with the physical environment. It has maximum diversity and niche specialization.

15 **(d)**

Producers → Herbivores → Carnivores
(Grass) (Rabbit) (Hawk)

17 **(a)**

4×10^{13} kg

18 **(a)**

Succession levels in xerarch (xerosere/lithosere) are :

(i) Lichen stage, *e.g.*, Crustose lichens followed by foliose lichens.

(ii) Moss stage, *e.g.*, *Tortula*, *Polytrichum*

(iii) Annual grass stage, *e.g.*, *Cymbopogon*

(iv) Perennial herb and shrub stage, *e.g.*, *Rubus*, *Capparis*, *Zizyphus*.

(v) Climax community, *e.g.*, Forests with herbs, shrubs and trees.

20 **(a)**

During weathering of rocks, minute amount of phosphates dissolve in soil solution and are absorbed by plant producer through roots

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	C	A	D	D	C	B	B	D	C	A
Q.	11	12	13	14	15	16	17	18	19	20
A.	B	A	D	C	D	C	A	A	C	A